WHAT IS CLAIMED IS:

1. An isolated or purified nucleic acid comprising at least one copy of the cPPT and CTS cis-acting regions of a retrovirus, wherein the cPPT and CTS regions induce a three-stranded DNA structure.

2. The nucleic acid of claim 1, wherein the retrovirus is a lentivirus.

3. The nucleic acid of claim 2, wherein the retrovirus is a human immunodeficiency virus (HIV).

4. The nucleic acid of claim 3, wherein the HIV is HIV-1 or HIV-2.

5. The nucleic acid of claim 2, wherein the lentivirus is VISNA, EIAV, FIV, or CAEV.

6. The nucleic acid of claim 1, comprising a single copy of the cPPT and CTS regions of the retrovirus.

7. The nucleic acid of claim 1, wherein the three-stranded structure contains the cPPT and CTS cis-acting sequences of the retrovirus.

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

8. The nucleic acid of claim 1, further comprising a heterologous nucleic acid sequence.

9. The nucleic acid of claim 8, wherein the heterologous nucleic acid sequence encodes a peptide, polypeptide, or protein.

10. The nucleic acid of claim 9, wherein the heterologous nucleic acid sequence encodes a therapeutic protein.

11. A vector comprising the nucleic acid of claim 1.

12. The vector of claim 11, which is an expression vector, a shuttle vector, an integration vector, a transposon, or a retrotransposon.

13. The vector of claim 11, which is pTRIP ΔU3 EF1α GFP.

14. A recombinant cell comprising the vector of claim 11.

15. A virus comprising the nucleic acid of claim 1.

16. The virus of claim 15 which is a retrovirus.

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

17. The retrovirus of claim 16, which is a lentivirus.

18. A recombinant cell comprising the nucleic acid of claim 1.

19. The recombinant cell of claim 18, wherein the cell is a HeLa cell or a hematopoietic cell.

20. The recombinant cell of claim 19, which is a hematopoietic stem cell.

21. A process for inserting a nucleic acid of interest into the nucleus of a target cell, said method comprising exposing an isolated or purified nucleic acid comprising at least one copy of the cPPT and CTS cis-acting regions of a retrovirus, wherein the cPPT and CTS regions induce a three-stranded DNA structure, to a target cell under conditions that permit uptake of the nucleic acid of interest into the target cell.

22. The process of claim 21, wherein the efficiency of insertion of the nucleic acid of interest into the target cell nucleus is 30% or greater.

23. The process of claim 21, wherein the nucleic acid of interest is present on a vector.

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

24. The process of claim 21, wherein the nucleic acid of interest comprises a heterologous nucleic acid sequence.

25. The process of claim 22, ~~wherein the heterologous nucleic acid encodes a peptide, polypeptide~~, or protein.

26. The process of claim 25, wherein the protein is a therapeutic protein.

27. The process of claim 21, wherein the target cell is a non-dividing cell.

28. The process of claim 21, wherein the target cell is a HeLa cell or a hematopoietic cell.

29. A process for expressing a gene of interest *in vitro*, said process comprising

a) exposing target cells to an isolated or purified nucleic acid comprising a gene of interest and at least one copy of the cPPT and CTS cis-acting regions of a retrovirus, wherein the cPPT and CTS regions induce a three-stranded DNA structure, under conditions that permit uptake of the nucleic acid into the target cell to create a recombinant cell, and

b) culturing the recombinant cell under conditions that permit at least part of the nucleic acid to be transferred to the nucleus of the recombinant cell and the gene of interest to be expressed.

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

30. The process of claim 29, wherein the nucleic acid is present on a vector.

31. The process of claim 29, wherein the gene of interest is expressed in tissue culture.

32. The process of claim 29, which further comprises purifying or isolating the product of expression of the gene of interest.

33. A process for expressing a gene of interest *in vivo*, said process comprising administering a recombinant cell comprising the nucleic acid of claim 10 to an individual, and permitting the recombinant cell to express the nucleic acid within the individual's body.

34. The process of claim 33, wherein the recombinant cell is a hematopoeitic stem cell.

35. A process for expressing a gene of interest *in vivo*, said process comprising administering the nucleic acid of claim 10 to an individual in an amount and form sufficient to result in expression of the gene of interest within the individual's body.

36. The process of claim 35, wherein the gene of interest is expressed in a target tissue.

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

37. The process of claim 35, wherein the gene of interest is present within a retroviral vector.

38. A process for treating an individual suffering from, or having a high likelihood of developing, a disease or disorder having a genetic basis, said process comprising administering a retroviral vector comprising a) a nucleic acid encoding a therapeutic protein and b) at least one copy of the cPPT and CTS cis-acting regions of a retrovirus, wherein the cPPT and CTS regions induce a three-stranded DNA structure, to said individual in an amount sufficient to result in expression of said therapeutic protein in an amount sufficient to treat said disease or disorder.

39. The process of claim 38, wherein the treatment is prophylactic, ameliorative, or curative.

40. The process of claim 38, wherein the process treats a blood disease or disorder, a brain or nervous system disease or disorder, or a developmental disease or disorder.

41. A kit containing at least one container containing an isolated or purified nucleic acid comprising at least one copy of the cPPT and CTS cis-acting regions of a retrovirus, wherein the cPPT and CTS regions induce a three-stranded DNA structure.

42. The kit of claim 41, wherein the nucleic acid further comprises a heterologous nucleic acid sequence that encodes a therapeutic protein.

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000

43. The kit of claim 41, wherein the nucleic acid is present on a vector.

SUB C4

LAW OFFICES
FINNEGAN, HENDERSON,
FARABOW, GARRETT,
& DUNNER, L.L.P.
1300 I STREET, N. W.
WASHINGTON, DC 20005
202-408-4000